

Notice of Allowability

Application No.

09/982,497

Examiner

Matthew J Sked

Applicant(s)

BALAN ET AL.

Art Unit

2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Applicant's Arguments 10/20/04.
2. ☒ The allowed claim(s) is/are 1-16.
3. ☒ The drawings filed on 18 October 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

Examiner's Amendment

1. An examiner's amendment to the record correcting an apparent incomplete change appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The **claims** should be amended to correct an incomplete change as follows: in claim 10, lines 5-6, in line 7 delete the "4".

The **drawings** should be amended as follows: in Figures 1-3, the vertical axis should be labeled H_D .

Authorization for the examiner's amendment to the drawings, above, was given in a telephone interview with Donald Paschburg on 12/13/04.

Response to Argument

2. Applicant's claims amendments and arguments, filed 10/20/04, with respect to claims 6-8, have been fully considered and are persuasive. No other relevant prior art for rejection being found, the rejection of claims 6-8 has been withdrawn. Claims 1-5 and 9-16 were already allowed.

Allowable Subject Matter

3. Claims 1-16 are allowed. The following is an examiner's statement of reasons for allowance:

Independent claims 1, 15, and 16 are allowed because they recite the combination of denoising (demixing) signal mixtures by constructing time-frequency representations and time-amplitude histograms therefore, for signal of interest and non-signal of interest segments of two signal mixtures, combining these histograms to create a weighting matrix, and rescaling the time-frequency representations thereby for synthesizing the denoised signal.

Jourjine et al. ("Blind Separation of Disjoint Orthogonal Signals: Demixing N Sources from 2 Mixtures") teaches constructing a time frequency representation of a pair of received mixtures and constructing frequency-time spectrograms therefrom. However, Jourjine does not teach constructing the two histograms for a broadband signal-of-interest segment and a non-signal-of-interest segment for the pair of mixtures, combining these to create a weighting matrix, rescaling the time-frequency components using said weighting matrix, and resynthesizing the demixed signal from the reweighted time-frequency representations.

Gustafsson (U.S. Pat. Pub. 2002/0051500) teaches a system for separating a mixture using a calculated weighting matrix utilized to obtain adaptive filter coefficients. However, Gustafsson does not teach nor fairly suggest calculating this weighting matrix by combining two histograms and does not teach rescaling the time-frequency components of the mixture to obtain the denoised signal.

It would not have been obvious to one of ordinary skill at the time of invention to make a combination of these inventions to obtain the applicant's invention.

Dependent claims 2-14 are allowed because they further limit the subject matter of their parent claims.

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

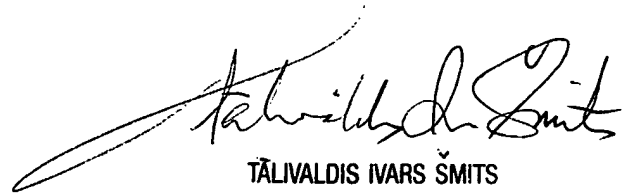
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J Sked whose telephone number is (703) 305-8663. The examiner can normally be reached on Mon-Fri (8:00 am - 4:30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Smits can be reached on (703) 306-3011. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MS
11/30/04



TĀLIVALDIS IVARS ŠMITS
PRIMARY EXAMINER